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Extension Results As Influenced By Various Factors

Study of 451 Farms and Farm Homes in Jackson and Menominee Counties, Mich., 1928

M. C. Wilson and R. J. Baldwin

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Cooperative Extension Work in Agriculture and Home Economics

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DISTRIBUTION. - One copy of this circular has been sent to each extension director, State and assistant State county agent leader, State and assistant State home demonstration leader, State and assistant State club leader, and to each agricultural college and experiment station library.

EXTENSION RESULTS AS INFLUENCED BYVARIOUS FACTIRS

A Study of 451 Farms and Farm Homes in Jackson and Menominee Counties, Mich., 1928.

M. C. Wilson[1] and R. J. Baldwin[2]

SCOPE OF STUDY

This study, conducted by the Office of Cooperative Extension Work, United States Department of Agriculture, and the extension service of the Michigan State Agricultural College in cooperation, furnishes some data regarding the rusults of extension teaching as reported by representative farmers and farm women. Attention is given to the effectiveness of the various means and agencies (methods) employed in extension, and to the influence of such factors as land tenure, contact with extension agents, educational training, and age, on extension results. Extension accomplishment for purposes of the study has been measured in terms of farmers and farm women influenced to accept as a part of their usual farm and home operations the improved practices taught by the cooperative extension service.[3]

COLLECTION OF DATA

The data were collected by the survey method, representatives of the extension service calling at every farm within the areas selected, and obtaining the information direct from the farmers and farm women concerned. The field work was done by experienced extension workers who were thoroughly acquainted with the extension programs and activities in the areas studied over a period of years. The members of the survey party were trained in the use of the questionnaire card (Figs. 1 and 1a) before going to the field, and the schedules were carefully checked at headquarters each day, and any errors or inconsistencies corrected in the field. Very little of the data was collected by the local county extension workers, but these agents assisted in all other ways possible in expediting the field work and insuring completeness and accuracy of data. The definitions of extension terms approved ny the Association of Land Grant Colleges and the United States Department of Agriculture, and published in the annual statistical report of county extension workers, have been closely followed throughout.

Information was obtained from 451 farms and farm homes about equally divided between Jackson and Menominee Counties. This number is approximately 95 per cent of all the farms located in the areas studied. No records were included for persons living in the open country or in small villages, who were not actually operating farms. The field data were collected during June, 1928.

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[3] Similar studies have been made in Iowa, New York, Colorado, California, New Jersey, Georgia, Wisconsin, Arkansas, South Dakota, Illinois, Pennsylvania, Minnesota, Kansas, and Rhode Island.

No.____ Co.____ FARM AND HOME SURVEY OF THE RESULTS OF EXTENSION WORK Date____________

Name____________________Address____________Community____________
Size of farm____________Kind of road____________Miles to agent's office____________
Years: Farming____________This farm____________Owner____________Tenant____________
No. in family: Adults____Children____Phone____Radio:____________No. Tubes____________
Get WKAR program: Noon____Evening____Time of evening program preferred____________
Other stations from which useful agric. and home econ. information is obtained____________
Member of what farmers' organizations____________
Member of what homemakers' clubs____________
Leadership in extension work: Farm____________Home____________
Number and kind of result demonstrations on farm____________In home____________
Other extension activities on farm____________In home____________
Extension activities attended or participated in away from farm: Agric.
H. Econ.____________Nature of contact with Co.Agt.____________H.D.Agt.____________
Club Agt.____________Specialists____________
Have circular letters been received?____________Bulletins____________

Farm and home practices adopted	Methods largely responsible (see list below)			Extension agents involved C.A.	H.D.A.	Cl.Agt.	Spec'l	Name of local ldr. involved

Fig. 1 - Obverse side of questionnaire card used in collecting data.

List below members of family of club age (10-20 yrs.), or who have carried on a junior project.

Name	Present age	In School	Cal. years in club work	Project	Why discontinued or why not a club member

How has your community benefited through extension work?____________
____________Suggestions for the improvement of the service____________

What agencies other than Extension do you rely on for assistance in connection with problems relating to: Farm____________Home____________
Papers and magazines taken: Daily____________Weekly____________Farm____________
____________Home____________Cultural____________
Attitude toward extension work____________Education: Man____Woman____________
Age: Man____________Woman____________Remarks:____________

Abbreviations: Correspondence (cor.); office call (o.c.); telephone call (tel.); farm and home visit (f.v.); leader training meeting (l.tr.); bulletin (bul.); circular letter (cir.l.); news story (n.s.); extension school or short course (e.s.); result demonstration: Adult (dem.a.); Junior (dem.jr.); method demonstration meetings (m.dem.); general meeting (mtg.); radio (r.); exhibit (exh.); poster (p); indirect influence (ind.)

Extension Services of the Michigan State College and of the United States Department of Agriculture cooperating. Fig. 1a - Reverse side of questionnaire card used in collecting data.

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AREAS IN TWO COUNTIES STUDIED

Jackson county, located in the south-central part of the lower peninsula is typical of the older part of the state, while Menominee county in the upper peninsula represents those more recently settled portions of the State where the clearing of land is an activity found on most farms. Within each county a solid area comprising about two townships was covered. In Jackson county this area was directly north of the city of Jackson, while in Menominee county the area was about 20 miles from the county seat. The locations of the areas are shown on the accompanying map. (Fig. 2)

Both Jackson and Menominee counties have cooperated with the college in the employment of county agricultural agents for a substantial period of time. Neither county has employed a home demonstration agent other than an emergency worker during the war period. Both counties have carried on considerable home economics extension work, however, with the assistance of specialists from the college.

Club agents have not been regularly employed, although both counties had the services of special workers with boys and girls during a considerable portion of the time since organized extension work has been under way in the counties.

Menominee county was the first to employ an agricultural agent beginning in July, 1916, and but for short periods of time between agents has had an agent continuously ever since. (Table 1.) Jackson county had an emergency agent during the war period, and soon afterward began the employment of an agent on a cooperative basis. Six different club agents served for from one to eight months each from 1918 to 1924 in Jackson county. A club agent was employed in Menominee county from July, 1919, to June, 1921. A club agent has been employed for a short period each year during most of the time since.

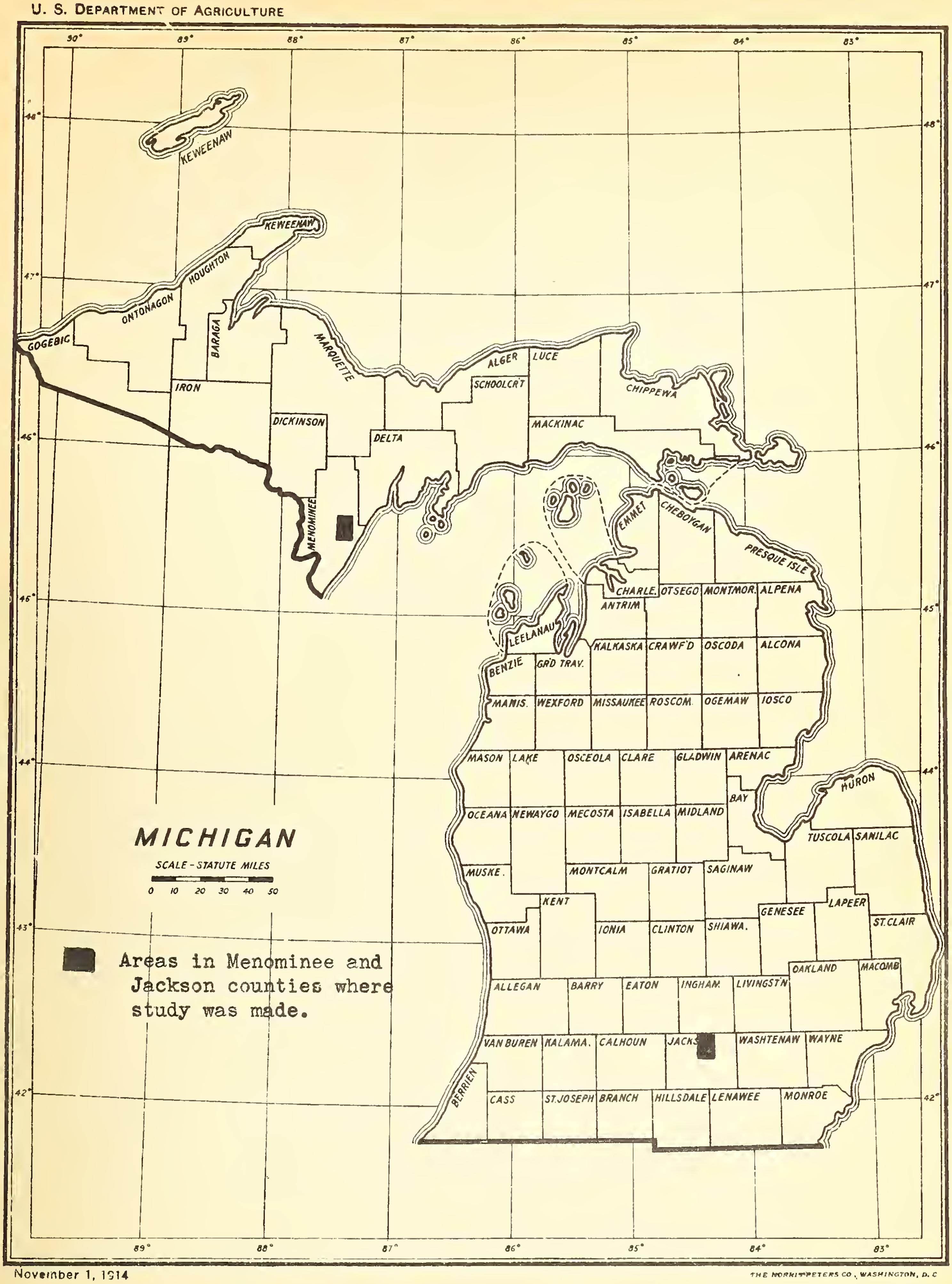

Fig. 2. - Map of Michigan showing location of areas included in study.

Table 1. - Extension Agents Employed in Counties Studied

County agricultural agent	Home demonstration agent	Club agent
	Jackson County	
E. C. Fowler (emergency) Nov. 1,1917 - Jan. 15,1918		Percy Howe (emergency) Apr.16,1918 - Sept.30,1918
O. V. Sheap July 1, 1919 - Dec. 31,1919		R. S. Simmons (emergency) June 1,1918 - Aug.15,1918
C. V. Ballard Mar. 1, 1920 - Nov. 16,1921		Miss A. F. Hill June 1,1919 - Sept.30,1919
Roy E. Decker Dec. 1, 1921 - present		Miss M. L. Wheeler July 1,1920 - July 31,1920
		G. J. Waite July 1,1921 - Oct.31,1921
		W. S. Wood May 1, 1922 - Oct.31,1922
		W. S. Wood Feb. 1,1923 - Sept.20,1923
		W. S. Wood May 1, 1924 - Dec. 31,1924
	Menominee County	
E. B. Hill July 1,1916 - Jan.15,1919	May E. Foley (emergency) June 1.1918-June 30,1919	Ralph Tenny (emergency) May 1,1918 -Aug.15,1918
E. G. Amos Feb. 21,1919 - Aug.31,1919		
Irving Kirshman Dec. 1,1919 - Nov. 30,1922		R. N. Kebler June 16,1919 - June 30,1921
Karl Knaus July 1,1923 - June 30,1927		J. L. Bumbalek May 1,1924 - Oct.31,1924
C. E. Skiver Nov. 1, 1927 - present		G. A. Thorpe July 1,1925 - Dec. 31,1925
		G. P. Williams July 1,1926 - Dec. 31,1926
		G. A. Thorpe July 1,1927 - Sept.30,1927

GENERAL INFORMATION RELATING TO FARMS STUDIED

All but 9 per cent of the farms included in the study were operated by the owners. (Table 2.) The average size of farm was 108 acres, and the average distance to the county extension office was 15.7 miles. Telephones were found in 58 per cent of the homes, while radios were found in 22 per cent of them. The farmstead was located on a paved or graveled road in 70 per cent of the cases. Children of club age (10 - 20 years) were found in 51 per cent of the farm homes, the total number of children of club age being slightly in excess of the total number of farms studied.

Table 2. - General Information Relating to Farms Included in Study

Item	Number	Per cent
Farm and home records obtained	451	--
Farms operated by owners	411	91
Farms operated by tenants	40	9
Farms with children 10 to 20 years of age	230	51
Children 10 to 20 years of age	495	--
Average size of farm (acres)	108	--
Homes with telephones	261	58
Homes with radios	100	22
Farms located on improved roads	316	70
Average distance to county extension office (miles)	15.7	--

Participation in Extension Activities

The farm operator on 6 per cent of the farms was serving as a voluntary local leader of an extension project, or had previously served in such capacity. This was true of the farm women in 4 per cent of the farm homes studied.

Formal extension activities relating to agriculture, such as conducting a result demonstration, holding a field meeting, a boy in club work, and the like,-- had been held on 16 per cent of the farms. An additional 49 per cent of the farmers had attended such activities on neighboring farms or at community centers. Corresponding extension activities relating to home economics had been held in 18 per cent of the homes, with 11 per cent additional represented in activities held outside the home. Boys or girls had been in 4 H club work previously or were so enrolled at the time of the study, in the case of 23 per cent of the farm homes.

Contact with some member of the extension service staff through attendance at meetings, children in club work, office calls, farm visits, and similar means, was reported by 74 per cent of the farm families interviewed. All but 2 per cent of these families had been in touch with the local county agricultural agent. Specialists from the College had made direct contact with 47 per cent of the farm families. Farm men and women acting as volunteer local leaders had been in official touch with 34 per cent of the farms and homes studied. (Table 3.)

Table 3. - Participation in Extension Activities and Contact with Extension Workers

Item	Number	Per cent
Farm and home records obtained	451	--
Farms and homes contributing local leaders	43	9
Farms contributing local leaders (agriculture)	29	6
Homes contributing local leaders (home economics)	17	4
Farms on which extension activities were conducted	72	16
Other farms represented in extension activities	223	49
Homes in which extension activities were conducted	83	18
Other homes represented in extension activities	49	11
Farms with boys and girls in club work (ever)	103	23
Farms or homes represented in any extension activity	325	72
Farmers or home makers reporting contact with:		
Any extension worker	333	74
County agent	325	72
Home demonstration agent	7	2
Club agent	28	6
Subject-matter specialist	211	47
Local extension leader	152	34

Farmers and Farm Women Adopt Extension Practices

In the case of 373, or 83 per cent of the 451 farms and farm homes studied, the farm operator or the farm woman, or both, reported that practices taught by the extension service had actually been accepted as a regular part of farm and home operations. (Table 4.) The average number of instances of changed practices reported for these farms and homes was 4.1. The adoption of better agricultural practices was reported by the farmers on 80 per cent of the farms. Extension effort influenced the adoption of home economics practices by farm women in 24 per cent of the homes. A list of the specific practices reported adopted with the percentage of farms or homes involved in each case is given in Table 5.

Table 4. - Farms and Homes Adopting Practices

Item	Number	Per cent
Farm records obtained	451	--
Farms on which some practice had been changed	373	83
Average number practices changed per farm	4.1	
Farms on which agricultural practices had been changed	362	80
Average number agricultural practices changed per farm	3.5	
Homes in which home economics practices had been changed	110.3	24
Average number home-economics practices changed per home	2.3	

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Table 5. - Agricultural and Home Economics Practices Reported Adopted

Practice	Number of farms or homes involved	Percentage of all farms or homes
Agricultural		
Alfalfa	226	50.1
Oats	84	18.6
Dairy feeding	77	17.1
Lime	66	14.6
Certified potato seed	60	13.3
Dairy breeding	56	12.4
Oat smut treatment	54	12.0
Potato seed treatment	53	11.8
Potato fertilizers	46	10.2
Poultry feeding	44	9.8
Potato varieties	40	8.9
Land clearing	40	8.9
Poultry culling	39	8.6
Sweet clover	36	8.0
Wheat	33	7.3
Poultry, general	29	6.4
Dairy, general	24	5.3
Poultry housing	23	5.1
Barley	21	4.7
Poultry diseases	20	4.4
Rye	19	4.2
Marketing	17	3.8
Seed corn selection	12	2.7
Orchard spraying	10	2.2
Lime on alfalfa	9	2.0
Corn varieties	9	2.0
Potato spraying	8	1.8
Corn borer control	8	1.8
Farm accounts	6	1.3
Wheat seed treatment	6	1.3
Swine feeding	6	1.3
Crop rotation	6	1.3
Drainage	6	1.3
Beef cattle feeding	6	1.3
Robust beans	5	1.1
Orchard pruning	5	1.1
Gardening	5	1.1
Beekeeping	5	1.1
Miscellaneous crops	15	3.3
Miscellaneous livestock	20	4.4
Miscellaneous agriculture	29	6.4

Table 5. - Agricultural and Home Economics Practices Reported Adopted (Continued)

Practice	Number of farms or homes involved	Percentage of all farms or homes
Home economics		
Canning	44	9.8
Clothing	40	8.9
Nutrition	28	6.2
Sewing	27	6.0
Home furnishings	23	5.1
Meal planning	15	3.3
Furniture arrangement	14	3.1
Dress forms	12	2.7
Child feeding	10	2.2
Curtains	9	2.0
Septic tanks	7	1.6
Wall furnishings	6	1.3
Recipes	6	1.3
Rug making	5	1.1
Miscellaneous home economics	10	2.2

METHODS WHICH INFLUENCED FARMERS AND FARM WOMEN TO ADOPT RRACTICES, AND EXTENSION AGENTS INVOLVED.

In connection with each improved farm or home practice adopted, careful inquiry was made regarding the means and agencies employed in extension teaching which the farmer or farm woman thought had in any way been responsible for the acceptance of the better practice. In many cases the incorporation of the new practice in the regular routine of the farm or home was the result of the cumulative influence of several means or agencies. In other cases, the influence of a single means was outstanding. A record was also made of the extension agent or agents involved in connection with each practice adopted.

Publicity methods like general meetings, radio talks, news stories, bulletins, and circular letters were reported by 57 per cent of the farmers or farm women influenced by extension to take up improved practices. (Table 6.) Personal-service type of methods such as farm and home visits, office calls, and correspondence were reported by 34 per cent of the farmers influenced. Object-lesson methods including method demonstrations and adult and junior result demonstrations were reported by 31 per cent. Influences of an indirect nature which could not be traced to definite means and agencies were mentioned by 43 per cent of those accepting the practices taught by the extension service.

The county agricultural agent was mentioned as having contributed to the adoption of improved practices in the case of 69 per cent of the farms effectively reached. Some credit was given to subject-matter specialists for practices changed on 51 per cent of the farms. Assistance from unpaid local exten-

sion leaders was recorded in the case of 34 per cent of the families influenced to adopt improved practices. (Throughout the discussion of methods and agencies one must keep in mind that the adoption of a single practice may have been influenced by several extension methods and by more than one kind of extension agent.)

Table 6. - Methods which Influenced Farmers to Adopt Practices, and Extension Agents Involved

Item	Number	Per cent
Farms on which some practice had been adopted	373	83
Farms or homes influenced by:		
Publicity methods	255	57
Personal-service methods	155	34
Object-lesson methods	142	31
Indirect influences	194	43
Farms or homes influenced by:		
County agent	309	69
Home demonstration agent	9	2
Club agent	16	4
Subject-matter specialist	232	51
Farms or homes assisted by local leaders	152	34

MEANS AND AGENCIES RESPONSIBLE FOR ADOPTION OF PRACTICES

Of the 1539 instances of improved practices adopted on the 373 farms for which the adoption of practices was reported, 1,283 relate to agriculture, and 256 to home economics. (Table 7.)

Methods falling in the publicity group were reported in connection with 51 per cent of the practices, personal-service methods 23 per cent, object-lesson methods 22 per cent, and the indirect influence of other methods 24 per cent. The county agricultural agent was mentioned in 72 per cent of the practices adopted, and subject-matter specialists 47 per cent, while assistance from local leaders was reported for 20 per cent of the instances of better practices accepted.

INDIVIDUAL MEANS AND AGENCIES COMPARED

Although not a true quantitative measure of the effectiveness of the individual methods employed in extension teaching, the frequency with which each was reported as having influenced the adoption of improved practices does furnish a basis for comparing the relative effectiveness of the various means and agencies. Table 8 shows the percentages of practices in connection with which the influence of individual methods was reported. There are naturally many instances where more than one method contributed to the adoption of a single practice. The influence of general meetings was most frequently

reported having been mentioned in connection with 29 per cent of all practices adopted (Table 8.) The indirect spread of information from one neighbor to another was cited in connection with 24 per cent of the practices followed by bulletins 19 per cent, method demonstration meetings 16 per cent, news stories 13 per cent, and farm visits 12 per cent. Result demonstrations, adult and junior, directly influenced nearly 7 per cent of the practices with office calls mentioned in connection with 6 per cent of the changes reported.

Table 7. - Methods Which Influenced the Adoption of Practices and Extension Agent Involved

Item	Number	Per cent
Practices adopted	1539	100
Agricultural practices adopted	1283	--
Home-economics practices adopted	256	--
Practices influenced by:		
Publicity methods	792	51
Personal-service methods	346	23
Object-lesson methods	345	22
Indirect influences	369	24
Practices influenced by:		
County agent	1113	72
Home demonstration agent	13	1
Club agent	27	2
Subject-matter specialist	717	47
Local leader	310	20

In the case of agricultural practices, the influence of the general meeting and the indirect spread were even more pronounced, being mentioned in the case of 33 per cent and 28 per cent respectively of the agricultural practices. The method demonstration meeting was reported in connection with 8 per cent of agricultural practices.

The method demonstration meeting and the leader training meeting which are closely associated in home demonstration work were reported in connection with 70 per cent of the home economics practices adopted. The other means and agencies influencing the adoption of an appreciable number of home economics practices were bulletins, 18 per cent, junior result demonstrations 13 per cent, and general meetings 10 per cent. Indirect spread from neighbor to neighbor accounted for the adoption of only 3 per cent of home practices as contrasted to 28 per cent of agricultural practices. The news story and the home visit influenced more than one-seventh each of the agricultural practices adopted but were negligible factors in the adoption of home practices. The fact that resident home demonstration agents were not regularly employed in the two counties studied would of course greatly limit the number of contacts which could be made through personal visits to farm homes.

The possible inter-relationship of the various means and agencies must be kept in mind at all times. The junior result demonstration is largely a by-product of training boys and girls through 4-H club work. Both the adult

and the junior result and the junior result demonstration are primarily concerned with the building of confidence in the recommendations of the extension service. They do not reach many people directly. The local proof established through result demonstrations, however, may make possible the effective reaching of people through such means as meetings, bulletins, news stories, and circular letters. The bulletin may supplement the meeting or the office call. Personal contact with agentsthrough farm and home visits may stimulate attendance at meetings and a wider reading of news articles. It is believed, however, that the above comparisons are indicative of the relative contribution of the means and agencies commonly employed in extension teaching toward directly influencing farmers and farm women to make practical uses of the improved practices taught.

Table 8. - Relative Frequency with Which Extension Methods Were Reported

Method	Percentage of practices adopted		
	Total	Agriculture	Home Economics
General meetings	29.1	32.8	10.5
Indirect	24.0	28.1	3.1
Bulletins	19.1	19.4	17.6
Method demonstration meetings	16.1	8.1	56.2
News stories	13.3	15.7	1.6
Farm and home visits	12.5	15.0	0.4
Office calls	6.0	7.2	--
Junior result demonstrations	3.8	2.0	12.9
Circular letters	3.3	3.7	1.6
Adult result demonstrations	2.9	3.4	0.8
Leader training meetings	2.5	0.3	13.7
Radio talks	2.0	1.6	3.9
Extension schools	1.5	1.6	1.2
Correspondence	1.3	1.6	--
Exhibits	1.0	1.1	0.4
Telephone	0.4	0.5	--

INFLUENCE OF OTHER FACTORS UPON ADOPTION OF PRACTICES

Many other factors besides the means and agencies employed in extension teaching may affect the adoption of improved practices advocated by the extension service. Some of these factors are land tenure, size of farm, distance from extension office, character of roads, educational training, age of farmers, participation in extension activities, and contact with extension workers.

Land Tenure

Less than 10 per cent of the farms included in the study were operated by tenants making a comparison of the farms on the basis of land tenure somewhat unsatisfactory. It is interesting to note, however, that a somewhat higher proportion of tenants and tenant-families adopted improved practices than was true of owner-operators and their families. (Table 9.)

Size of Farm

The farm families living on the larger farms made a somewhat greater use of extension information. (Table 10.) The percentage of farms changing agricultural practices increased from 78 per cent for the small farm group to 80 per cent for the medium size group and 89 per cent for the large farm group. The corresponding percentages for farm homes adopting home economics practices were 20, 29, and 30. Considering all practices, the small farm group changed 277 practices per 100 farms and homes as compared to 359 per 100 farms for the middle group and 527 for the largest farm group.

Table 9. - Condition of Land Occupancy in Relation to Adoption of Practices

Group	Number of farms	Percentage of all farms	Average size	Percentage of farms changing practices			Number of practices changed per 100 farms
				Agriculture	Home economics	Any practice	
Owners....	411	91	105	80	24	82	330
Tenants...	40	9	138	82	32	88	460

Table 10. - Relation of Size of Farms to Number of Farms Changing Practices

Group	Number of farms	Percentage of all farms	Percentage of farms changing practices			Number of practices changed per 100 farms
			Agriculture	Home economics	Any practice	
0 - 80 acres...........	229	51	78	20	80	277
81 - 160 acres.........	158	35	80	29	84	359
Over 160 acres.........	64	14	89	30	91	527

Distance from Extension Office

About one-half of the farms included in the study were situated more than 12 miles from the county extension office. In spite of the fact that the more distant group average 17 miles farther away from the extension office, fully as high a proportion of the farmers in this group reported the adoption of agricultural practices as of those living but seven miles away.

In the case of home practices, however, the advantage seems to be with those women living relatively near the county seat. (Table 11.)

Character of Roads

The farmstead was located on an improved road (concrete, macadam, or gravel) in the case of 70 per cent of the farms, the remaining 30 per cent being situated on unimproved dirt roads. As is the case of distance from the extension office, whether the farm is located on an improved or unimproved road seems to have had little effect upon the extent of adoption of extension practices. (Table 12.) Extension work apparently reaches just as high a proportion of the farms and homes located on unimproved side roads at a distance from the county seat as of those situated on improved main roads closer to the extension office.

Educational Training of Farmers and Farm Women

In every case where the farmer had had some college training it was found that use had been made of information made available through the extension service. (Table 13.) Where some high-school training had been received, 93 per cent of the farmers in the group adopted improved practices as compared to 79 per cent of those whose formal education had not gone beyond the common school.

In the case of farm women, 67 per cent of those having some college training made use of home economics extension. (Table 14.) This was true of 50 per cent of the women with some high school but no college training and of 22 per cent of those with common school education or less.

Table 11. - Relation of Distance of Farms from Extension Office to Change of Practices

Group	Number of farms	Average distance in miles	Percentage of farms changing practices: Agriculture	Home economics	Any practice	Number of practices changed per 100 farms
1 - 12 miles..........	228	7.1	77	34	80	396
13 miles and over.....	223	24.5	84	14	85	285

Table 12. - Nature of Roads in Relation to Change of Practices

Group	Number of farms	Percentage of farms	Percentage of farms changing practices: Agriculture	Home economics	Any Practice	Number of practices changed per 100 farms
Improved roads...	316	70	80	22	82	337
Unimproved roads.	135	30	80	30	84	350

Table 13. - Education of Farmers as Related to Adoption of Agricultural Practices

Educational training	Number	Percentage of all farms	Percentage adopting agricultural practices	Number of agricultural practices adopted per 100 farms
Some college	4	1.	100	725
Some high school but no college	45	10.	93	489
Common school or less	392	87.	79	262

Table 14. - Education of Farm Women as Related to Adoption of Home Economics Practices

Educational training	Number	Percentage of all farms	Percentage adopting home economics practices	Number of home economics practices adopted per 100 homes
Some college	3	1.	67	100
Some high school but no college	58	13.	50	141
Common school or less	361	80.	22	47

It would seem but natural that there should be a direct relationship between the amount of educational training received and the use made of extension service information. It is also evident that extension teaching has been pretty well adapted for the use of farmers and farm women with limited schooling.

Age of Farmers and Farm Women

That age does not seem to have been any barrier to the acceptance and use of better practices advocated by extension workers is evident from Table 15 where the farmers have been divided into four age groups. A slightly higher percentage of those farmers between the ages of 36 and 55 reported the adoption of improved farm practices than was true of the under 35 and over 55 year groups. Fully as high a percentage of the farmers 56 years of age and older made changes in farm operations due to extension teaching, as was true

of the farmer less than 35 years of age. Practically the same relationship exists between the age groups in the case of farm women as in the case of farm men. (Table 16.) There does appear to be a greatly lessened use of extension information by the farm women 56 years of age and older.

It is probable that the farmers in the older age groups have greater financial resources than the farmers in the youngest age group and have learned from actual experience the advisability of utilizing available agencies in helping to solve new farm and home problems. Their children are also old enough to participate in 4-H club work. On the other hand, the younger farmers and farm women have the advantage of more educational training, and some of them may have participated in club work themselves. Lessened physical activity and semi-retirement are common in the oldest group and would naturally decrease their interest in improved practices.

Table 15. - Relation of Age of Farmers to Adoption of Agricultural Practices

Age group	Number	Percentage of all farms	Percentage adopting agricultural practices	Number of agricultural practices adopted per 100 farms
35 years and under.......	66	15	74	258
36 to 45.................	125	28	85	330
46 to 55.................	116	26	83	296
56 and over..............	137	30	78	257

Table 16. - Relation of Age of Farm Women to Adoption of Home-Economics Practices

Age group	Number	Percentage of all farms	Percentage adopting home economics practices	Number of home economics practices adopted per 100 homes
35 years and under........	99	22	26	71
35 to 45..................	130	29	35	73
46 to 55..................	103	23	26	54
56 and over...............	96	21	11	35

Because these data closely parallel data on age obtained through a like study in another state/1 it would seem that extension workers can dismiss age of farmers and farm women as an important factor in extension teaching.

Participation in Extension Activities

The factors just considered such as age of farmer, educational training, distance, roads, and the like are largely if not entirely outside the control of extension workers. Let us now consider a factor which is closely related to the manner in which extension work is conducted.

Where the farm or farm home had been the scene of some formal extension activity, such as a boy or girl in club work, a field demonstration, or a community meeting, the adoption of improved practices followed in 100 per cent of the cases. (Table 17.) Where there had been no activities on the farm but where members of the farm family had attended extension activities on neighboring farms or at community centers, 91 per cent of the families reported the adoption of practices. This was true of but 52 per cent of the families that had not attended such extension activities. The number of practices adopted per 100 farms and homes was four times as great when farmers and farm women had been induced to attend meetings or participate in extension activities.

Contact with Extension Workers

In addition to attendance at extension meetings, farm families may also make contact with extension agents through farm and home visits, office and telephone calls, and personal correspondence. In those cases where some member of the farm family had been in touch with a representative of the extension service, improved practices were found adopted on 95 per cent of the farms (Table 18) as contrasted with 48 per cent of the farms where no contact had been made with extension workers.

Table 17. - Participation in Extension Activities as Bearing on Farms Changing Practices

Group	Number of farms	Percentage of all farms	Percentage of farms changing practices: Agriculture	Home economics	Any practice	Number of practices adopted per 100 farms
Farms having extension activities on farm & home	129	29	96	51	100	605
Other farms participating in extension activities............	196	43	88	20	91	311
Farms not participating in extension activities	126	28	52	4	52	118

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[1] Wilson, M. C. and Clapp, A. L. - Extension Results as Influenced by Various Factors (Kansas) U. S. Dept. of Agric. Ext. Serv. Circ. 77.(mimeographed.)

Table 18. - Contact with Extension Workers as Related to Change of Practices

Group	Number of farms	Percentage of all farms	Percentage of farms changing practices: Agriculture	Home economics	Any practice	Number of practices changed per 100 farms
Farms having made contact with extension workers...	333	74	93	29	95	426
Farms having made no contact..................	118	26	44	10	48	101

Tables 17 and 18 point out clearly the importance of so organizing and conducting extension work that over a period of years as large a proportion as possible of the farming people will have participated in extension activities or in other ways come into contact with representatives of the extension service. There is naturally a close relationship between the means and agencies employed in extension teaching (Table 18) and the number of people with whom extension agents are able to make contact.

Radio

Of the 451 farm homes included in the study an even 100 or 22 per cent were equipped with a radio (Table 19.) Extension radio programs had been received by 79 per cent of those having radios. In the case of 14 farmers or a little less than 18 per cent of those having radios, the adoption of some practices due to extension radio information was reported. But 2 per cent of all the practices changed were credited to the influence of information received over the radio.

Practically all of the instances of use of information from the radio were reported from the Jackson County area in the lower peninsula, since difficulty in reception of college radio programs was quite uniformly reported by farmers in the Menominee County area of the upper peninsula.

A few more people received the evening than received the morning radio program. When questioned regarding the time of evening program preferred, 28 favored 7:15 p.m., 23 expressed preference for 8:00 p.m., and 12 stated that 7:00 p. m. would be most satisfactory. (Table 20.)

Papers and Magazines

There were only 16, or less than 4 per cent of the 451 homes visited where no reading material came regularly to the farm home. Daily papers came to 62 per cent of them. (Table 21.) Local weekly papers were taken by 42 per cent of the farm homes. Nearly 90 per cent of the farmers subscribed to

various periodicals relating to the farm, and received on the average 2.4 such publications. Similar publications relating to matters of interest about the home were taken by 48 per cent of the farm women. Other magazines of a cultural nature found their way regularly into 20 per cent of the homes. With such evidence of the reading habits of farmers it is not surprising that the influence of news articles relating to extension work was reported in the case of 13 per cent of all improved practices adopted.

Table 19. - Influence of Radio on Adoption of Improved Practices

Number of farms with radio	100
Percentage of all farms	22
Number getting extension programs from college over radio	79
Number influenced by radio to adopt improved practices	14
Percentage of those getting radio extension programs	18
Number of practices adopted due to influence of radio	31
Percentage of all practices adopted	2
Number getting useful information from stations other than college(WKAR)	62

Table 20. - Percentage of Families Obtaining Morning, Noon, and Evening Programs, and Time of Day Preferred

Number of families getting radio extension programs from Michigan State Agricultural College	79
Number getting noon program	60
Number getting evening program	71
Number preferring evening program at 6:15 p. m.	1
Number preferring evening program at 7:00 p. m.	12
Number preferring evening program at 7:15 p. m.	28
Number preferring evening program at 7:30 p. m.	6
Number preferring evening program at 7:45 p. m.	1
Number preferring evening program at 8:00 p. m.	23
Number preferring evening program at 8:30 p. m.	1

Table 21. - Homes Receiving Papers and Magazines

Kind of periodical	Percentage	Average number of papers and magazines
Daily papers	62	1.25
County weeklies	42	1.11
Farm papers	88	2.44
Home magazines	48	1.69
Other magazines	20	1.46

Membership in Organizations

From the standpoint of number of farmers involved the farm bureau was the strongest farm organization found in the areas studied, with 27 per cent of the farmers enrolled as members. (Table 22.) Local cooperative associations had 20 per cent of the farmers as members. Mutual Fire Insurance included nearly 9 per cent of the farmers. Other associations enrolling one or more per cent of the farmers were; Dairy Improvement Association, Michigan Milk Producers, The Grange, and the Michigan Crop Improvement Association.

EXTENT AND INFLUENCE OF 4-H CLUB WORK

Boys and girls of club age (10-20 years) were found on 51 per cent of the farms studied. These families averaged slightly more than two children of club age per family, so that the total number of boys and girls eligible for club work was a little in excess of the total number of farms included in the study. (Table 23.) One hundred seventy-five boys and girls on 103 farms either were carrying on a club project or had participated in club work in the past. This number equals 35.4 per cent of the number of boys and girls of club age on farms at the time of collecting the data. The average 1928 club member was 13 years of age, and 13.5 per cent of the eligible farm boys and girls were enrolled in club work that year.

Of the improved farm and home practices adopted by adults 3.8 per cent were credited to the influence of result demonstrations conducted by club members.

Table 22. - Membership in Farmers' and Home Makers' Associations

Organization	Number	Per cent
Farmers		
Farm bureau	122	27.1
Local cooperative associations	90	20.0
Mutual fire insurance company	39	8.6
Dairy improvement association	19	4.2
Michigan milk producers' association	9	2.0
Grange	7	1.6
Michigan crop improvement association	5	1.1
Miscellaneous	14	3.1
Home Makers		
Home economics clubs	73	16.2
Miscellaneous	2	0.4

Table 23. - Farmers and Children in Junior Project Work

Farm and home records obtained	451
Percentage of families with children of club age (10 to 20 years)	51
Number of children of club age	495
Number of families with boys and girls in 4-H clubs (ever)	103
Percentage of families with children in club work(ever)	22.8
Number of boys and girls in 4-H clubs (ever)	175
Percentage of boys and girls (10 to 20 years) in club work (ever)	35.4
Percentage of boys and girls (10 to 20 years) in club work - 1928	13.5
Average age of club members - 1928	13
Percentage of 1928 club members not in school	1.5
Percentage of all practices adopted due to influence of junior result demonstrations	3.8

AGENCIES OTHER THAN EXTENSION RELIED ON FOR ASSISTANCE

Information was also collected as to the agencies outside the extension system from which helpful assistance was obtained regarding farm and home problems. Papers and magazines head the list, being reported by

33.9 per cent of the farmers, and 10.2 per cent of the farm women. Neighbors and relatives come next with "own experience" third on the list. (Table 24).

In addition to being a valuable ally in reporting an extension activities, farm papers, dailies and county weeklies are also instrumental in rendering service to readers along various farm and home problems.

ATTITUDE TOWARD EXTENSION

In connection with each farm family interviewed an estimate was made as to the attitude toward extension. Seventy-two per cent or nearly three families out of four were recorded as favorable to the work. (Table 25). Only one family in twenty-five (4 per cent) was reported as opposed to the work, while the remaining 24 per cent were classed as indifferent. It is this last group which presents a challenge to extension workers.

Table 24. - Agencies Other Than Extension Relied on for Assistance

Agency	Number	Per cent
In connection with the farm:		
Papers and magazines	153	33.9
Neighbors and relatives	51	11.3
Own experience	37	8.2
Merchants	13	2.9
Miscellaneous	14	3.1
In connection with the farm home:		
Papers and magazines	46	10.2
Neighbors and relatives	21	4.7
Own experience	10	2.2
Miscellaneous	5	1.1

Table 25. - Attitude Toward Extension

Item	Number	Per cent
Farm records obtained	451	100
Families reported favorable	323	72
Families reported indifferent	107	24
Families reported opposed	19	4

SUMMARY

The study is based on information obtained from 451 nonselected farm families in representative areas of two Michigan counties.

Improved practices were reported adopted due to extension influence on 80 per cent of the farms and in 24 per cent of the farm homes.

The individual teaching means most frequently reported in connection with practices adopted were general meetings, indirect spread, bulletins, method demonstrations, news stories, and farm visits.

With home-economics practices the influence of the method demonstration meetings was outstanding with bulletins, leader training meetings, junior result demonstrations, and general meetings also of major importance.

The percentage of farms and homes making practical use of extension information increased with increased size of farm.

Distance from extension office and character of roads had little if any influence upon the spread of information regarding better practices.

Educational training of farmers and farm women was closely associated with adoption of better practices.

Age does not seem to have had any marked influence upon extent of adoption of practices.

Participation in extension activities and contact with extension workers were most important factors in the adoption of improved practices by both farmers and farm women, and emphasize the desirability of extension workers so conducting their work that over a period of years a large proportion of the Farming people will be led to take part in extension meetings, and will otherwise be brought into personal contact with representatives of the extension service.